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Brown
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PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	)	
	:	Examiner: T. T. Dinh
SHOHEI TAKEDA	)	
	:	Group Art Unit: 2827
Application No.: 09/897,933	)	
	:	
Filed: July 5, 2001	)	
	:	
For: EMITTED-RADIO-WAVE SHIELD AND IMAGE FORMING APPARATUS USING SAME	) :)	June 13, 2002

Commissioner for Patents
Washington, D.C. 20231

AMENDMENT AND PETITION FOR EXTENSION OF TIME

Sir:

Applicant petitions to extend the time for response to the Office Action dated February 14, 2002, for one month, from May 14, 2002 to June 14, 2002. A check in the amount of $110.00 for payment of the extension fee is enclosed. Please charge any additional fee required for the extension, and credit any overpayment, to Deposit Account 06-1205.

The Examiner is respectfully requested to amend the above-identified application as follows.

IN THE SPECIFICATION:

Please substitute the following paragraph for the paragraph starting at page 1, line 26 and ending at page 2, line 13. A marked-up copy of this paragraph, showing the changes made thereto is attached.

--An alternative arrangement is shown in Fig. 5, which is an external perspective view of an emitted-radio-wave shield according to the prior art. This shield includes a shield box 201 the opening of which has flanges 201b formed on its four sides, and a shield plate 203 secured to the flanges 201b using screws 210 that are threadedly engaged with screw holes 201c formed in the flanges 201b at prescribed intervals. A board 202 (indicated by the dashed lines) for image processing is secured to the bottom side of the shield box 201 by screws or the like. Further, the shield plate 203 is secured to the flanges 201b of the shield box via shield members 204 that have been cut to prescribed lengths, thereby reducing the number of screws 210 needed to secure the shield plate 203 to the shield box 201.--

Please substitute the following paragraph for the paragraph starting at page 7, line 4 and ending at page 7, line 9. A marked-up copy of this paragraph, showing the changes made thereto is attached.

--In the arrangement described above, the shield plate 3 is provided with the protrusions 3a at the intervals t and the shield members 4 are secured in a contract state in which they are electrically connected to the shield box 1. The arrangement is such that the protrusions 3a press the shield members 4.--

IN THE CLAIMS:

Please cancel Claim 4 without prejudice or disclaimer of subject matter.

Please amend Claims 1, 5 and 9 and add Claim 14 as follows. A marked-up copy of Claims 1, 5 and 9 showing the changes made thereto, is attached. Note that all the claims currently pending in this application, including those not presently amended, have been reproduced below for the Examiner's convenience.

1. (Amended) An emitted-radio-wave shield comprising:

a shield box housing a circuit board;

a shield plate removably secured to said shield box; and

a shield member formed from a resilient body and, which is disposed at a joint between said shield box and said shield plate and is attached in electrical connection to said shield box, for shielding emitted radio waves from the circuit board in a state in which said shield plate is secured to said shield box;

wherein said shield plate is formed to have a plurality of protrusions, which project toward said shield member, so as to contact and press said shield member.

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2. (Unamended) The shield according to claim 1, wherein said plurality of protrusions are formed on said shield plate at regular intervals.

3. (Unamended) The shield according to claim 2, wherein said regular interval is 60 mm or less.

5. (Amended) An emitted-radio-wave shield comprising:

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a shield box housing a circuit board;

a shield plate removably secured to said shield box; and

a shield member, which is disposed at a joint between said shield box and said shield plate and is attached in electrical connection to said shield plate, for shielding emitted radio waves from the circuit board in a state in which said shield plate is secured to said shield box;

wherein said shield box is formed to have a plurality of protrusions, which project toward said shield member, so as to contact and press said shield member.

6. (Unamended) The shield according to claim 5, wherein said plurality of protrusions are formed on said shield box at regular intervals.

7. (Unamended) The shield according to claim 6, wherein said regular interval is 60 mm or less.

8. (Unamended) The shield according to claim 5, wherein said shield members are resilient bodies.

9. (Amended) An emitted-radio-wave shield comprising:

a shield box housing a circuit board, said shield box having an opening, which is formed to include a flange, and locking means;

a shield plate removably secured to the flange; and

a shield member formed from a resilient body and, which is disposed on the flange constituting a joint between said shield box and said shield plate and is attached in electrical connection to said shield box, for shielding emitted radio waves from the circuit board in a state in which said shield plate is secured to said shield box;

wherein said shield plate is formed to have a plurality of protrusions, which project toward said shield member, so as to contact and press said shield member;

one edge of said shield plate is formed to have projections and said flange is formed to have corresponding through-holes for mating with respective ones of the projections; and

an edge of said shield plate opposite said one edge is formed to have a locking portion for locking engagement with said locking means of said shield box.

10. (Unamended) The shield according to claim 9, wherein said plurality of protrusions are formed on said shield plate at regular intervals.

11. (Unamended) The shield according to claim 10, wherein said regular interval is 60 mm or less.

12. (Unamended) The shield according to claim 9, wherein said shield members are resilient bodies.

13. (Unamended) An image forming apparatus using the emitted-radio-wave shield set forth in claim 1, wherein said circuit board is an image processing circuit board for converting an image to an electric signal and then processing the image.

Please add new claim 14 as follows:

14. (New) The emitted-radio-wave shield according to Claim 1, wherein said shield box has a locking means, and said shield plate has a locking portion to be locked to said locking means.

REMARKS

Claims 1-14 are now presented for examination. Claim 4 has been cancelled without prejudice or disclaimer of subject matter. Claims 1, 5 and 9 have been amended to define still more clearly what Applicant regards as his invention, in terms which distinguish over the art of record. Claim 14 has been added to assure Applicant of the full measure of protection to which he deems himself entitled. Claims 1, 5 and 9 are the only independent claims.

The specification has been amended to correct the informalities noted by the Examiner at pages 2 and 7.

Claims 1-13 have been rejected under 35 U.S.C. 112, second paragraph, as indefinite. Claims 1, 5 and 9 have been amended to recite more clearly that the shield member is attached in electrical connection to the shield box or the shield plate and that the shield plate or the shield box is formed to have a plurality of protrusions so as contact and press the shield member. In Claim 5, the shield member is attached in electrical connection to the shield plate so that the protrusions are on the shield box to electrically connect the shield box to the shield plate through the shield member. Accordingly, it is believed that Claims 1-13 as amended fully meet the requirements of 35 U.S.C. 112, second paragraph and that Claims 9-12 are allowable.

Claims 1-8 and 13 have been rejected under 35 U.S.C. § 103(a) as unpatentable over the admitted prior art in view of U.S. Patent 6,051,780 (Fuhrmann et al.). With regard to the claims as amended, this rejection is respectfully traversed.

Independent Claim 1 as amended is directed to an emitted-radio-wave shield having a shield box housing a circuit board and a shield plate removably secured to the shield box. A shield member formed from a resilient body is disposed at a joint between the shield box and the shield plate and is attached in electrical connection to the shield box. The shield member shields emitted radio waves from the circuit board in a state in which the shield plate is secured to the shield box. The shield plate is formed to have plural protrusions which project toward the shield member to contact and press the shield member.

The admitted prior art discloses an emitted-radio-wave shield that includes a shield box with flanges on its four sides. A shield plate is secured to the flanges using screws threadedly engaged with screw holes formed in the flange at prescribed intervals. The shield plate is secured to the flanges via shield members that have been cut to prescribed lengths to reduce the number of screws needed to secure the shield plate to the shield box.

In Applicant's view, Fuhrmann et al. discloses a screening device against electromagnetic radiation having a thin structural unit that extends in a plane and has walls running essentially perpendicular to the plane. The walls themselves, at least in partial regions, are elastically deformable in the direction of the structural unit.

According to the invention defined in Claim 1, a shield for an emitted radio waves has a shield box that houses a circuit board and a shield plate formed to have protrusions that project toward a shield member formed from a resilient body attached in electrical connection with the shield box to contact and press the shield member.

Advantageously, the operation of attaching and removing the shield plate to access the board is simplified while leakage of emitted radio waves is prevented.

As recognized by the Examiner the admitted prior art does not teach a shield plate formed with protrusions which project toward and contact a shield member.

Fuhrmann et al. may teach a shield plate arrangement. In Fuhrmann et al., however, it is required that an electrical print circuit board be placed in direct contact with bulges 12 integrally formed on the edges of walls 3 of a shield plate. As disclosed at lines 10-13 of column 4 in Fuhrmann et al., each bulge 12 forms an elastic region and is deformable and is specially shaped to be thinner at the tip than in the edge region.

In contrast to Fuhrmann et al.'s required contact between specially shaped elastic bulges at the rim of a wall 7 and edges of a circuit board, it is a feature of Claim 1 that a simple shield plate is formed with protrusions that project toward a resilient body shield member to contact and press the shield member which is attached in electrical connection with a shield box containing the circuit board. Fuhrman et al. is devoid of any disclosure of the use of a shield member of a resilient body connected to a shield box containing a circuit board against which protrusions of a shield plate are contacted and pressed as in Claim 1. Accordingly, It is not seen that the Furhrmann et al.'s circuit board contact with special bulges at a wall rim could possibly be combined with the prior art screw attachment arrangement of the admitted prior art to suggest the features of Claim 1. It is therefore believed that Claim 1 as amended is completely distinguished from any combination of Fuhrmann et al. the admitted prior art and is allowable.

Independent Claim 5 is directed to an emitted-radio-wave shield having a shield box that houses a circuit board and a shield plate that is removably secured to the shield box. A shield member disposed at a joint between the shield box and the shield plate is attached in electrical connection to the shield plate. The shield member shields emitted radio waves from the circuit board in a state in which the shield plate is secured to the shield box. The shield box is formed to have plural protrusions which project toward the shield member to contact and press the shield member.

It is a feature of Claim 5 as amended that a shield member is attached in electrical connection with a shield plate and a shield box formed to have protrusions toward the shield member contacts and pressed the shield member to provide an emitted-radio-wave shield for a circuit board in the shield box. As discussed with respect to Claim 1, Fuhrmann et al. requires spaced elastic bulges mounted in a wall that are pressed against the edges of a circuit board to be shielded. Accordingly, it is not seen that the Fuhrmann et al.'s shielding arrangement of wall mounted elastic bulges pressed against the edges of a circuit board could be combined with the admitted prior art to suggest the features of Claim 5. Accordingly, it is believed that Claim 5 as amended is completely distinguished from any combination of Fuhrmann et al. and the admitted prior art and is allowable.

Newly added Claim 14 depending from Claim 1 recites further features of the invention that are shown in the drawings and disclosed in the specification. No new matter is believed to have been added.

A review of the other art of record has failed to reveal anything which, in Applicant's opinion, would remedy the deficiencies of the art discussed above, as

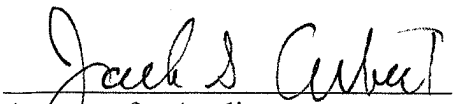
references against the independent claims herein. Those claims are therefore believed patentable over the art of record.

The other claims in this application are each dependent from one or another of the independent claims discussed above and are therefore believed patentable for the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual consideration or reconsideration, as the case may be, of the patentability of each on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, Applicant respectfully requests favorable consideration and reconsideration and early passage to issue of the present application.

Applicant's attorney, C. Phillip Wrist, may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,



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